



Confederated Tribes and Bands
of the Yakama Nation

Established by the
Treaty of June 9, 1855

September 6, 2016

Gina McCarthy, Administrator
Environmental Protection Agency
Office of the Administrator, 1101A
1200 Pennsylvania Ave., N.W.
Washington, D.C. 20460

RE: Portland Harbor NPL Site - Submittal of Comments on the Proposed Plan

Dear Ms. McCarthy:

The Yakama Nation would like to sincerely thank you for meeting with Yakama Nation leadership on July 25 to discuss cleanup of the Portland Harbor NPL Site. We appreciate the opportunity to fully explain the significance of Yakama treaty rights, uses and resources of the Willamette and Columbia Rivers, and how they must be the key factors driving the decision for cleaning up Portland Harbor. We hope we were able to impress upon you the full gravity of your decision. It is our expectation that EPA will understand the promises that Governor Isaac Stevens gave to the Yakamas at the 1855 Treaty negotiations, and deliver a cleanup decision that honors those promises.

Your decision for cleanup at Portland Harbor impacts the Lower Willamette River, the Lower Columbia Basin, and the Yakama people now and for many generations to come. Quite simply, fish in the Willamette River must be clean, healthy and safe to eat; achievement of this result should be the overarching goal of cleanup.

To assist EPA in achieving a level of cleanup that upholds trust obligations and treaty resource protection we have attached Yakama Nation's comments on the Proposed Plan for the Portland Harbor NPL site asking for EPA to implement Alternative G with modifications.

In addition to the submittal of these comments on the Proposed Plan, I want to acknowledge the recent Yakama Nation / EPA managers meeting. We stressed the importance of a government-to-government consultation prior to the public release of the ROD to discuss the details of how EPA addressed the enclosed comments. Yakama staff will continue dialogue with your agency regarding the arrangements for this meeting.

Your time and consideration is greatly appreciated. Please feel free to contact me at 509-865-5121 if you have any questions.

Respectfully,

JoDe Goudy,
Chairman
Yakama Tribal Council

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***“NOT MUCH LESS NECESSARY THAN THE ATMOSPHERE
THEY BREATHED”***

**Comments from the
Confederated Tribes and Bands of the Yakama Nation**

Submitted to the
United States Environmental Protection Agency

on the
**Portland Harbor Superfund Site
Proposed Cleanup Plan**

September 6, 2016

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I. INTRODUCTION

In 1905, the United States Supreme Court issued its landmark decision in the case of *United States v. Winans* (198 U.S. 371). Rendering an opinion for an 8-1 majority, Justice Joseph McKenna wrote that for the Yakama people fishing for salmon in the Columbia River was “*not much less necessary to the Indians than the atmosphere they breathed.*” This decision also went on to help establish one of the most important principles in Indian law, generally known as the Reserved Rights Doctrine, when the court further stated that the rights retained by the Yakama Nation via their Treaty of 1855 “*... was not a grant of rights to the Indians but a grant of rights from them – a reservation of those not granted.*”

What was true in 1905 – and for thousands of years before that – is still the case today and will be for Yakama children yet unborn; salmon are of paramount importance to our people. Columbia River salmon are central to our diet and therefore our health, to our ability to earn a living, to our religion and to our culture. For these reasons, we have been fighting in the courts and before the Congress for well over 100 years to ensure the salmon runs of the Columbia River Basin are protected. While we have oftentimes prevailed before the courts or in the Congress, these victories have still left the fishery resource significantly reduced and our people damaged in ways that are not always evident. There are species of food that our elders used to eat, that came from the river or that were dependent on the river and that are now gone. As Indian people we are taught to plan seven generations ahead. Unless we take steps to deal with toxics in the Columbia what will the future hold, even one two generations into the future, not to mention seven?

It is important for the United States Environmental Protection Agency (EPA) to appreciate the nature of our present rights. In the Treaty of 1855 we ceded over 12 million acres of land to the United States. That land now covers nine separate counties in central and eastern Washington. Our Treaty further reserved the right of taking fish at all usual and accustomed fishing. One of the first cases to test this right resulted in the 1905 *Winans* decision. The *Winans* decision ruled that private land owners could not prevent Yakama fishers from accessing an off-reservation usual and accustomed fishing place on the Columbia River. Numerous federal court decisions since *Winans* have reaffirmed our Treaty fishing rights in the Columbia Basin. Those decisions have also held that Treaty fishing rights are property rights with all the legal protections associated with a property right.

An employee of the commercial salmon industry told a representative of our tribe that without the legal strength of the fishing rights retained by the Yakama that he didn't think there would be any salmon left in the Columbia River. While we appreciate the compliment he was paying

us and the acknowledgement of the role our advocacy has played in protecting the fishery, it is an amazing observation in consideration of the fact that 25 years ago, the commercial fishing industry viewed the Columbia River Treaty Tribes as a threat. And while it is certainly good that the non-Indians were not able to totally eradicate the once mighty run of Columbia River salmon, we still have serious problems. Historically 16 million salmon returned to the Columbia each year. Today's run sizes total a fraction of that number (between 1.5 to 2 million). Most salmon runs on the Columbia are either threatened or endangered as designated under the Endangered Species Act. Habitat destruction, massive hydroelectric dams, non-Indian overfishing, and contamination from the release of hazardous substances are the principal reasons for this decline. The release of hazardous substances is responsible for fish consumption advisories that are currently or will soon to be applied to nearly 70 percent of the reach of the Columbia River within the United States, from the Canadian border to the mouth. To address this crisis, mega Superfund sites like Portland Harbor and a multitude of other hazardous waste sites impacting Columbia River resources need cleanups that focus on hazardous substance removal, treatment, and disposal rather than natural recovery, capping, or institutional controls.

The problem is that for over a century industry has and continues to discharge its waste into the Columbia River, dumping untold millions of tons of toxic chemicals into the River. Today, ratepayers are spending millions of dollars a year to try and enhance the size of the salmon runs with growing evidence that those fish contain toxins as a result of that pollution. A report issued by the EPA, entitled "*Columbia River Basin: State of the River Report for Toxics*"¹ stated that contamination in the Columbia basin poses an "unacceptable risk" to the people, fish and wildlife of our region. This study focused on mercury, DDT, PCBs and PBDEs (including flame retardants) and its results made headlines throughout the Northwest. While the study limited itself to the four contaminants identified above it acknowledged there are many other contaminants in our water including arsenic, dioxins, radionuclides, pesticides and even pharmaceuticals. There are many Superfund sites in our region, with Lake Roosevelt, the Hanford Nuclear Reservation and Portland Harbor being the three largest. These sites are adding deadly toxics to this beloved river and it is important that we reduce toxics from these sites and be vigilant in monitoring levels of toxicity throughout the Basin.

Moreover, this contamination is not just impacting Columbia River resources it has a tremendous adverse impact to our people. Our subsistence life style of consuming Columbia

¹ U.S. Environmental Protection Agency. 2009. *State of the River Report for Toxics*. EPA-910-R-08-004.

River fish and other aquatic animals (such as eels) at rates that are many times higher than is the case within the non-Indian residents of the Pacific Northwest puts our health in jeopardy. Studies undertaken jointly by EPA and the Columbia River Inter Tribal Fish Commission showed that members of the four Columbia River Treaty Tribes (Yakama, Umatilla, Warm Spring and Nez Perce) consume nine times as much salmon as the general population. It is therefore not surprising that the members of these tribes have a 1 in 50 chance of contracting cancer from eating fish in certain parts of the Columbia, a figure that is demonstrably higher than the national average.

EPA must utilize its authorities under the Comprehensive Response, Compensation, and Liability Act (CERCLA) to reduce and eliminate toxic chemicals throughout the Columbia River Basin and especially at mega Superfund sites like Portland Harbor. If EPA does not require an aggressive removal of hazardous substances from the largest industrialized tributary to the Columbia River, EPA is essentially shifting the burden of these toxic chemicals to the people of the region and not holding the polluters liable for the contamination they have created. EPA's record of decision (ROD) for cleanup at Portland Harbor is a critical element to right the wrongs of over a century of pollution. Cleaning up Portland Harbor to benefit natural resources in the Willamette and Columbia is a no brainer. Doing so will create jobs, help the regional economy, and protect aquatic resources. The benefits of clean, healthy rivers far outweigh the costs of cleanup.

As EPA continues its review of our comments on the Proposed Plan for the Portland Harbor National Priorities List (NPL) Site, it is important to keep in mind that the Yakama Nation is not just a stakeholder; the Yakama Nation is a recognized government with clear Treaty and property rights and an existing management role in the Columbia River Basin. As such, we respectfully request that EPA implement Alternative G with modifications so that the Willamette and Columbia are clean and productive to sustain the cultural practices of our people and improve life for our neighbors and future generations. Alternative G is a more aggressive plan that gets us closer to a reasonable cleanup so that fish are clean, healthy and safe to eat. EPA's ROD must:

a. Protect Yakama Nation's Treaty Rights

Provide a cleanup that results in fish that are clean, healthy and safe to eat. The cleanup should be aggressive enough to eliminate health advisories as a result of toxic releases from Portland Harbor. The Proposed Plan (PP) uses fish consumption advisories, instead of adequate cleanup, to protect human health. The restoration timeframe of 30 years is unsupported and it is unknown if these institutional controls can ever be lifted.

Prevent the release of contaminated sediments into the Columbia River. EPA's overreliance on natural recovery will allow for the continued release of persistent and bioaccumulative contaminants to the Columbia River, putting our fish and people at risk. In addition to using lower Alternative G dredge decision criteria, the ROD should provide more aggressive cleanup measures in erosional areas.

Include language regarding Yakama's role in overseeing the cleanup. The Yakama Nation expects to be fully engaged and an active participant in oversight throughout the cleanup process.

EPA must uphold its federal trust responsibility by clarifying roles. EPA cannot delegate its federal trust responsibility to the State of Oregon. We are opposed to a State-led implementation of the in-water cleanup at this site.

b. Meet CERCLA Threshold Criteria

Meet threshold requirements for protectiveness. The Proposed Plan does not meet or is uncertain to meet multiple interim risk targets.

Comply with ARARs. The cleanup must comply with State water quality and hazardous substance remedial action rules for risk.

Remove all Principal Threat Waste (PTW) to assure maximum reduction of risk for the life of the remedy. It will take 100s to 1,000s of years for contaminants to degrade. Capping PTW in place provides little to no assurance that future releases will not occur on this time scale, and in a river environment that is set in a tectonically active region as well as subject to climate change.

Protect shorelines and nearshore habitat. A significant portion of the affected benthic receptors, as well as riverbank and groundwater source areas are unaddressed in the Proposed Plan and need clarification in the ROD.

- a. The riverbank and groundwater cleanups should not be dealt with separately by the state, and should be addressed more specifically in the ROD.
- b. A greater portion of the area exceeding benthic criteria should be cleaned up.
- c. Higher value habitat areas should be given additional consideration for a more protective cleanup.

c. Include Additional ROD Elements

Include an evaluation of upland source control and provide assurances that upland sources will not affect the in-water cleanup efforts. Adequate upland source control measures must be in place prior to the cleanup to protect the river from recontamination. EPA needs to take a more active role in ensuring these source controls move forward and are adequate.

Include a contingency plan. Proposed Plan projections for natural recovery of multiple contaminated media are unsupported and highly uncertain. A contingency plan with a clear decision criteria is necessary to correct the recovery trajectories if the site is not adequately trending towards the cleanup goals.

The justification for this request that EPA implement Alternative G is supported by the following comments.

II. TREATY RIGHTS

Through exercise of its reserved treaty fishing rights, the Yakama Nation is recognized as a co-manager and trustee for Columbia River Basin resources, and an active participant in CERCLA cleanups. EPA has a fiduciary duty to protect these rights and authorities both substantively and procedurally, and for that reason the ROD must make clear not only the important role that the tribe will have in the remedial action, but also EPA's and the State of Oregon's roles in ensuring Yakama's meaningful participation.

a. Yakama Treaty Rights

The Yakama Nation is the legal successor in interest to the Indian signatories to the Treaty with the Yakamas of June 9, 1855 (12 Stat. 951). Under Article III of the Treaty, the Yakama Nation has reserved for itself and its members the right to take fish at all "usual and accustomed places." The term "usual and accustomed (U&A) places", with respect to fishing, is defined as *"every fishing location where members of a tribe customarily fished from time to time at and before treaty times, however distant from the then usual habitat of the tribe, and whether or not other tribes then also fished in the same waters."* *U.S. v. Washington*, 384 F.Supp. 312 (W.D.Wash. 1974). Since time immemorial, Yakama people have migrated, lived, and fished in the Lower Columbia River tributaries. The Willamette River is recognized by the Yakama Nation as a U&A fishing place, and has always been an important food gathering area. Every June and July enrolled Yakama members travel to Willamette Falls to collect the culturally

important *Asúm* eel, also known as the Pacific Lamprey, for traditional ceremonies and subsistence.

The nature and scope of the Yakama Nation's off-reservation treaty reserved fishing rights on the Columbia River and its tributaries has been extensively litigated through participation as an original plaintiff-intervener in the continuing jurisdiction case of *United States v. Oregon* (Civil No. 68-513-KI, D. Or.). See *Sohappy v. Smith*, 302 F. Supp. 899 (D.Or. 1969); *United States v. Oregon*, 913 F.2d 576 (9th Cir. 1990). In 1977, the Yakama Nation participated in the creation of the Columbia River Inter-Tribal Fish Commission (CRITFC), which provides technical and policy assistance to four treaty tribes in their management of Columbia River fisheries. In 2008 the parties to *U.S. v. Oregon* signed a ten-year Management Agreement for tribal and state co-management of Columbia River anadromous fish species, entered as an enforceable order of the U.S. District Court. The Yakama Nation is recognized as a trustee under CERCLA for any natural resources "*belonging to, managed by, controlled by, or appertaining to*" the tribe within the Columbia Basin, including in the Willamette River. 42 U.S.C. § 9607(f)(1).

In recent years, the Yakama Nation has participated as *amicus curiae* in numerous legal actions involving the National Marine Fisheries Service's administration of the Endangered Species Act (ESA) with respect to listed salmon and steelhead stocks, to which the tribe holds treaty-reserved fishing rights. See, e.g., *National Wildlife Federation, et. al., v. NMFS, et. al.* (Civil No. 01-640-SI, D. Or); *American Rivers, et. al. v. NMFS, et. al.* (Civil No. 96-384-MA, D. Or). The Yakama Nation also protect its interests and legal rights via the following representative sample of activities: fish habitat restoration efforts, many of which are detailed in the Columbia Basin Fish Accords; participation in the ongoing processes for the development of ESA Recovery Plans for listed salmon and steelhead; development and implementation of fishing management plans as a party to *U.S. v. Oregon*; implementation of the Pacific Salmon Treaty through participation in the Pacific Salmon Commission processes (see 16 U.S.C. 3631, *et. seq.*); and participation in a variety of other policy and technical committees and organizations dealing with issues related to the protection and rebuilding of salmon, steelhead, lamprey, and other species throughout the Columbia River basin.

Significantly, the Yakama Nation continues to participate in numerous environmental response actions throughout the Columbia Basin being conducted under both CERCLA and state cleanup laws. If the Yakama Nation conducts or participates in a response action it is entitled to recover all costs of removal or remedial action incurred by the tribe [that are] not inconsistent with the National Contingency Plan (NCP). 42 U.S.C. §

9607(a)(4)(A); see also *Confederated Tribes and Bands of the Yakama Nation v. U.S. Dept. of the Army, et. al.* (Civil No. 14-1963-PK, D. Or), Findings and Recommendation (ECF No. 33, Dec. 18, 2015).

Based on these legal authorities, EPA in its Record of Decision must specifically acknowledge the role that the Yakama Nation will have in the design and implementation of the remedial action for Portland Harbor. The tribe's participation in the Remedial Design/Remedial Action (RD/RA) phase of the CERCLA cleanup is critical to the upholding of treaty reserved rights in the Lower Columbia Basin, and will also greatly assist in EPA's statutory mandate for protection of human health and the environment. EPA must ensure that the Yakama Nation has the means to fully engage with agencies and actively participate in oversight throughout the RD/RA process.

b. Trust Responsibility

EPA has for many years expressly recognized its fiduciary duty toward Indian tribes. See, e.g., *EPA Policy for the Administration of Environmental Programs on Indian Reservations* (November 8, 1984) at 3. Federal courts have recognized the trust responsibility toward tribes in EPA's actions conducted under federal environmental statutes, including those affecting tribal resources outside Indian reservations. *Nance v. Environmental Protection Agency*, 645 F.2d 701 (9th Cir. 1981). EPA's most recent tribal consultation policy also reaffirms this principle as a foundation of its relationship with Indian governments. *EPA Policy on Consultation and Coordination with Indian Tribes* (May 4, 2011) at 3.

Courts generally hold that the nature of the trust responsibility and its specifics are defined by Congress. *United States v. Mitchell*, 445 U.S. 535 (1980). This includes a duty to protect the exercise of fishing rights reserved by a treaty with the United States. *Parravano v. Babbitt*, 70 F.3d 539, 546 (9th Cir. 1995). The duty is also enforceable in CERCLA through certain statutory provisions applying to treatment of Indian tribes enacted by Congress in 1986 through the Superfund Amendments and Authorization Act (SARA). 42 U.S.C. § 9626(a). These include the requirement that EPA consult with affected tribes "*before determining any appropriate remedial action to be taken.*" 42 U.S.C. § 9604(c)(2). CERCLA also requires lead agencies to coordinate with tribes as trustees in "*assessments, investigations, and planning*" of all response actions. 42 U.S.C. § 9604(b)(2); see also 40 CFR § 300.615(c)(1)(ii). CERCLA and the NCP should be construed broadly to include the remedial design/remedial action (RD/RA) phase of

response actions in these fiduciary duties. See, e.g., *Carson Harbor Village v. Unocal Corp.*, 270 F.3d 863 (9th Cir. 2001).

However, the federal government may not delegate its trust responsibilities to state agencies. See *Assiniboine and Sioux Tribes v. Board of Oil and Gas*, 792 F.2d 782 (9th Cir. 1986). This is a critical issue for the Portland Harbor cleanup because Oregon Department of Environmental Quality (ODEQ) has expressed an interest in implementing either part or all of the RD/RA phase of the in-water cleanup. Whether this is done directly through CERCLA or under the Oregon Environmental Cleanup Law, ORS 465.200 *et. seq.*, EPA will still retain a fiduciary duty to the tribe to protect its legal interests under the Treaty of 1855. For this reason the Yakama Nation objects to any transfer of oversight to ODEQ. Our concerns are especially relevant to ensuring that the remedial action meets appropriate cleanup standards for treaty protected fisheries, as well as the expected negotiation of funding and participation agreements with PRPs for the RD/RA phase.

As you know, our experience with Yakama's participation in the Astoria Marine Construction Co. (AMCCO) site in Clatsop County has been a glaring illustration of what can go horribly wrong when EPA transfers or delegates its authority to the State of Oregon. In 2012, Region 10 deferred its proposed placement of the site on the NPL by placing oversight in the hands of ODEQ. One of the conditions that EPA had put on the deferral was assurance of support for tribal involvement, and both ODEQ and AMCCO were clearly notified that this would involve funding of tribal participation as well. However, in the past four years AMCCO has engaged in numerous disputes with the Yakama Nation regarding a number of funding issues, including annual budgets, indirect costs, and attorney fees. These disagreements jeopardized the tribe's full participation, and created unprecedented cost overruns and administrative headaches. ODEQ meanwhile took a "hands off" approach to these problems, arguing that it has no authority to enforce or otherwise get involved with the company's funding of Yakama's participation in the cleanup. This approach has also been exemplified by the lack of coordination by ODEQ project managers at other sites including Bradford Island and Mosier.

Unless EPA ensures that the tribe will have an enforceable mechanism for ensuring that EPA upholds its trustee role in the context of state remedial actions, the Yakama Nation must oppose any plan to delegate in-water cleanup responsibilities to ODEQ. Any transfer of oversight to the State of Oregon without any written guarantee that the Yakama Nation's cleanup role will be adequately recognized and funded, or the tribe's

treaty resource interests strictly protected, will be considered a serious violation of EPA tribal consultation policies and fiduciary duties.

c. Contamination Extends Beyond Site Boundaries to the Columbia River

Releases from Portland Harbor are major contributors to the contamination of resources in the lower Columbia River. The Willamette River is also the largest industrialized tributary and source of contamination to the Columbia River. The mainstem of the Columbia River is the most important Treaty fishing area for the people of the Yakama Nation. Survival of fish that rear as juveniles in the lower Willamette and Columbia Rivers will continue to be at risk from Portland Harbor contaminants under the Proposed Plan.

i. Site Boundaries vs. Study Area

To date, EPA has failed to take into consideration the releases from the Site to the lower Columbia River. The Proposed Plan does not adequately describe the loading and potential impacts to resources beyond the Site boundaries. We argue that the Site boundaries are really a “study area”, which is the terminology used in the original Remedial Investigations. By CERCLA definition, a site includes anywhere a hazardous substance has come to be located. Contamination from the Portland Harbor Superfund Site does not stop at the downstream Site boundary. However, for the sake of expediency, EPA and the PRPs artificially and arbitrarily truncated the downstream Site boundary, leaving downstream Site contamination unaddressed. Data conclusively show that Site contamination exceeds toxicity criteria at and beyond the downstream boundary and that Site contaminant loads are transported further downstream and into the Columbia River.

ii. Impacts to Resources

Harmful and toxic pollutants from the Willamette River are carried into the Columbia River and have been found in salmon below the confluence of these two rivers^{2,3}. Portland Harbor is contributing highly toxic PCBs, DDT, polycyclic aromatic

² U.S. Environmental Protection Agency. 2009. *State of the River Report for Toxics*. EPA-910-R-08-004.

³ Lyndal Johnson , Bernadita Anulacion , Mary Arkoosh , O. Paul Olson , Catherine Sloan , Sean Y. Sol , Julann Spromberg , David J. Teel , Gladys Yanagida & Gina Ylitalo. 2013. *Persistent Organic Pollutants in Juvenile Chinook Salmon in the Columbia River Basin: Implications for Stock Recovery*, *Transactions of the American Fisheries Society*, 142:1, 21-40.

hydrocarbons (PAHs), dioxins/furans, and other persistent and bioaccumulative pollutants to the Columbia River. As a result, the health of juvenile salmon in the Columbia River is impaired by exposure to these contaminants. Juvenile salmon slow down and spend extra time in the Columbia River estuary to acclimate, feed and grow before heading out to sea. Pacific lamprey and sturgeon are also at risk from these toxic substances. Lamprey ammocetes live and feed in the Site sediments for up to 7 years before migrating; however, Site monitoring to date on lampreys has been inadequate. Resident fish downgradient of the arbitrary Site boundary have not been adequately monitored for contaminants, despite the known sediment loading to the Columbia River.

iii. Recovery Efforts

Federal, state, tribal, and many local partners are working to support the recovery of salmon, steelhead, and other ESA listed fish species in the lower Columbia River and its tributaries. Since 1978, Bonneville Power Administration has invested \$2.68 billion in fish recovery in the Columbia River watershed. Considerable resources (on the order of \$200 million annually) are directed towards these efforts in order to abate the decline of these species and move toward their recovery. The inadequacies of the Proposed Plan are contradictory to these investments of public dollars in fisheries recovery.

iv. NRRB Recommendation on Columbia River Impacts

The National Remedy Review Board and Contaminated Sediments Technical Advisory Group (the boards) review of the Draft Feasibility Study resulted in the following recommendation⁴: *“The boards note that several stakeholder comments indicate that Portland Harbor releases are contaminating the Columbia River downstream of the Site.” “The boards recommend that the decision documents contain a clear explanation as to how the Region believes effective remediation of Portland Harbor sediment should reduce contaminate loading to the Columbia River’s surface water, sediment, and biota.”* It is key for the Region to elucidate where contaminants migrate to or be deposited outside the boundaries of the Site,

⁴ United State Environmental Protection Agency. *Memorandum, National Remedy Review Board and Contaminated Sediment Technical Advisory Group Recommendations for the Portland Harbor Superfund Site*. December 31, 2015.

given the Region's interpretation that the Portland Harbor Site is not largely depositional, but erosional or transitory in nature.

Although we appreciate the Columbia River contaminant loading estimates that were added to the Site Feasibility Study, the Proposed Plan is grossly inadequate and relies on scouring and off-Site transport of contaminated sediments for the majority of the Site area.

v. Yakama Nation Recommendations

It is important to the Yakama that the Portland Harbor contamination is cleaned up for all species, the health of the Yakama, our neighbors, and future generations. Contaminant loadings to the Columbia River must be reduced to the greatest extent possible. The ROD must develop a monitoring framework for evaluating contaminant loading to the Columbia River, assess the effects to aquatic biota, and finish delineating the extent of where Portland Harbor contamination has come to be located, as required by CERCLA. The effectiveness of the Portland Harbor Superfund Site cleanup is critical to support the recovery of salmon, lamprey, and steelhead (and other species) in these waters and therefore a more comprehensive Alternative G must be implemented.

In addition, any resolution of liability agreement between EPA and the responsible parties must not prevent future actions outside the Portland Harbor Site boundaries where Portland Harbor contamination is transported through or has come to be located.

III. CERCLA THRESHOLD CRITERIA

The Proposed Plan selects a partial cleanup that does not meet CERCLA threshold criteria. By implementing remedial measures that will not meet these thresholds, EPA is essentially selecting a remedy that fails to fulfill its mandates in violation of both NCP and CERCLA. In addition, by taking cost into account EPA is putting the cart before the horse – threshold criteria must be met first.

a. Threshold Criteria Not Met

The Proposed Plan does not adequately demonstrate that the Preferred Alternative (Alternative I) would comply with the two CERCLA threshold requirements: (1) overall protection of human health and the environment and (2) Applicable or Relevant and

Appropriate Requirements (ARARs). 40 CFR § 300.430(f)(1)(i)(A); see also 42 U.S.C. § 9621(d)(2)(A). In addition, it will result in fish consumption advisories for perpetuity.

i. Protection of human health and the environment

Protection of human health and the environment is the statutory standard for cleanup under CERCLA. 42 U.S.C. § 9621(b)(1). Under the discussion of this criterion, interim risk targets for end of cleanup construction were developed by EPA *“to specify the level of risk that is ideally achieved through active cleanup”* and to determine if alternatives are likely to achieve remedial action objectives that are based on human health or ecological risk. It is then presumed that if interim risk targets are met, then compliance with ARARs would be achieved within a reasonable timeframe after construction through natural recovery processes. However, Alternative I is not anticipated to meet the interim risk-based targets for Remedial Action Objectives (RAOs) 1, 2, and 6, and therefore may not achieve the associated ARARs within a reasonable restoration timeframe. As noted in the Portland Harbor Feasibility Study (FS), for several RAOs *“there are no current means to quantitatively assess the effectiveness of the alternative in achieving [preliminary remediation goals] PRGs”*, for some *“there is insufficient information to evaluate”* whether the RAO will be achieved, and for others no clear quantitative goal is presented (RAOs 3, 4, 7, 8 and 9). See Table 1 for a summary of interim risk targets.

Table 1 - Interim Risk Targets for Post Construction Risks and Meeting Threshold Criteria

RAO interim risk targets (scale)	Alt I meets target?	Alt G meets target?
RAO1 – HH sediment ingestion & dermal contact interim target of 10 ⁻⁵ cumulative cancer risk (1/2 river mile)	No	Yes
RAO2 – HH fish consumption interim target of 10 ⁻⁴ (or -5?) cancer risk (Site-wide) Interim target of 10 ⁻⁴ (or -5?) cancer risk (river mile) Interim target of 10 ⁻⁴ cancer risk (SDU) Interim target of HI<10 (Site-wide) Interim target of HI<10 (river mile) Interim target of HI<10 (SDU) Interim target of infant HI<1,250 (or 10x residual HI, or 1,320?) (Site-wide) Interim target of infant HI<920 (or 420?) (river mile) Interim target of infant HI<920 (or 420?) (SDU)	No No No No No Yes Yes No Yes	Yes No Yes Yes Yes Yes Yes No Yes
ROA3 – HH surface water direct contact & ingestion Interim target <10xPRG for each COC (Site-wide) Interim target<10xPRG for each COC (SDU)	Yes ?	Yes ?
RAO4 – HH groundwater migration to sediment and surface water Quantitative goal not described	?	?
RAO5 – ECO sediment direct contact & ingestion Interim target of >50% benthic risk area exceeding PRG (or 10x PRG?) (Site-wide)	Yes	Yes
RAO6 – ECO predator-prey consumption Interim target HQ<10 (river mile) Interim target HQ<10 (SDU)	No ?	Yes ?
RAO7 – ECO surface water direct contact & ingestion Quantitative goal not described	?	?
RAO8 – ECO groundwater migration to sediment and surface water Quantitative goal not described	?	?
RAO9 – HH & ECO river bank contamination migration to sediment & surface water Quantitative goal not described	?	?

- Red= conflicting or not enough info in FS and/or PP. FS, Section 4.1.3, 4.1.5.1, 4.3.1, 4.3.3 & PP, p51, 52, 58, 59, 62-63, 65, 66, 67
- Interim Risk Targets are criteria used to evaluate Post Construction Risk and are the basis for meeting the threshold criteria - Overall Protection of HH and Environment. It is assumed that if these criteria can be met post-construction, then MNR will be effective within a reasonable restoration timeframe. Interim Risk Targets were also used to select RALs for each SDU.
- Timeline: The Proposed Plan is not clear on timeline, but it is assumed that construction start is considered time = 0 years. Post construction risk (@ 7 years) is also compared to residual risk (@ 30 years, once RAOs/PRGs met) within the Proposed Plan.

ii. Applicable or Relevant and Appropriate Requirements

ARARs identified, but not met by PRGs, for the site include measures of protectiveness of human health and the environment required in the Oregon Hazardous Substance Remedial Action Rules. These include:

- A 1 in 1,000,000 (1×10^{-6}) lifetime excess cancer risk for individual carcinogens
- A 1 in 100,000 (1×10^{-5}) cumulative lifetime excess cancer risk for multiple carcinogens
- A hazard index (HI) of 1 for non-carcinogens
- Toxic substances may not be introduced above natural background levels in waters of the state in amounts, concentrations, or combinations that may be harmful, may chemically change to harmful forms in the environment, or may accumulate in sediments or bioaccumulate in aquatic life or wildlife to levels that adversely affect public health, safety, or welfare or aquatic life, wildlife, or other designated beneficial uses. (OAR 340-041-0033)
- The formation of appreciable bottom or sludge deposits or the formation of any organic or nonorganic deposits deleterious to fish or other aquatic life or injurious to public health, recreation, or industry may not be allowed. (OAR 340-041-0007(11))

In addition, EPA's proposed plan does not comply with the Clean Water Act (CWA). In 2000, the EPA published guidance and recommendations on the use of fish and shellfish consumption advisories in determining attainment of water quality standards and listing impaired waterbodies under Section 303(d) of the CWA (EPA, 2000)⁵, which includes the following statement: *"EPA generally believes that fish and shellfish consumption advisories and certain shellfish growing area classifications based on waterbody specific information demonstrate impairment of CWA section 101(a) "fishable" uses. This applies to fish and shellfish consumption advisories and certain shellfish area classifications for all pollutants that constitute potential risks to human health, regardless of the source of the pollutant."*

Based on our review of the proposed plan and communications with EPA, it is apparent that fish consumption advisories will be needed at the site, possibly in-perpetuity. Based on EPA guidance, this advisory would impair the designated use of a fishable lower

⁵ United State Environmental Protection Agency. *EPA's Fish and Shellfish Consumption Advisories and Shellfish Growing Area Classification Recommendations*. October 24, 2000.

Willamette and Columbia rivers, and would not comply with ARARs based on state water quality standards.

iii. Over-reliance on Institutional Controls

The cleanup plan for Portland Harbor under the Preferred Alternative will rely upon Institutional Controls (ICs), non-engineered measures intended to affect human activities in such a way to prevent or reduce exposure to hazardous substances, to prevent or limit exposure to contaminants for humans, not only during construction activities, but permanently and forever. ICs have no ability to reduce ongoing ecological exposures. ICs will include, but are not limited to, commercial fishing bans, fish and shellfish consumption advisories, signs and fences on adjacent upland areas, enhanced community outreach programs, waterway and land use restrictions through covenants or restricted navigation areas, or other dredging and structural maintenance restrictions in capping area. The reliance on ICs will be for perpetuity.

These ICs are in place of adequate cleanup, do not fully protect human health and the environment, do not fulfill trust obligations, and place the burden of cleanup (or rather inadequate cleanup) on the health of community and environment rather than on the PRPs.

iv. Unaddressed Principal Threat Waste

The Proposed Plan does not call for complete removal of Principal Threat Waste (PTW) at Portland Harbor. In addition, dredge depth limits were established for the purpose of cost estimation, but not justified, within the Proposed Plan. Based on current data and conversation with EPA, we see the greatest potential for significantly high concentrations, mass, and volumes of pollutants to be left in place in sediments adjacent to Arkema and NW Natural Gas.

All PTW should be removed and removal should be as complete as possible. Highly toxic wastes and non-aqueous phase liquids identified in sediments as PTW should be addressed through removal and treatment, as required. We recommend that, once baseline monitoring is complete and vertical delineation of sediment contamination is known, remedy design select complete removal, over capping, wherever possible. Treatment options should ensure that river character, flooding habit, or regional events such as earthquakes and impacts from climate change, do not affect that overall efficacy of the mitigation of these toxic wastes.

v. Lack of a Consistent, Conservative Approach and Additional Uncertainties

EPA's evaluation of risk lacks consistent, conservative approaches to evaluating Site risk. In addition, EPA's evaluation of alternatives does not address the underlying uncertainty of success. Many of the methods used for evaluating risk at the Site are not conservative, have a high-level of associated uncertainty which is not adequately addressed in the Proposed Plan or in the Feasibility Study, and are not in line with current regulations or based on site-specific knowledge.

- 1) EPA indicates that the development of alternatives is based only on a subset of the Chemicals of Concern (COCs) present at the Site and under the assumption that addressing a small group of 6 "focused COCs" would address risk associated with all 64 COCs. The development of Remedial Action Levels (RALs), interim risk levels, and the estimated duration to achieve RAOs are not based on all Site COCs which under-represents the true risk that will remain after construction and the duration required to achieve RAOs. Although focusing on a subset of COCs may be acceptable for simplifying remedy design, EPA must not lose sight of the fact that there are still 64 COCs contributing to toxicity. The ROD should specify that cleanup levels, other compliance metrics, and future evaluations must estimate the cumulative effects of all Site COCs.
- 2) PRGs should be developed for all COCs and use maximum exposure assumptions, such as higher fish consumption rates and protective scenarios for Tribal fishers. The Yakama religion and culture teaches us that every fish caught is considered a gift from the provider and is not to be wasted. Therefore, resident fish caught during salmon fishing are also consumed.
 - a) Residual cancer risk and non-cancer HIs for RAO 2 (human consumption of fish and shellfish) were calculated using risk-based Preliminary Remediation Goals (PRGs) assuming a fish consumption rate based on a national consumption rates (per the BERA) which are lower than the regional data available for Oregon and Pacific Northwest-specific fish consumption rates and tribal heritage rates. This may underestimate residual risk and HIs for RAO 2. No tribal member should be put at risk as a result of Portland Harbor contamination. At a minimum, tribal heritage

consumption rates⁶ should be used for setting cleanup levels.

- b) Residual risk and HIs for RAO 2 were calculated differently for the Site-wide risk estimates (national rate of 142 g/day) relative to the river-mile risk estimates (using a lower fish consumption rate of 49 g/day). Documentation within the Feasibility Study does not indicate the appropriateness of this substitution which may result in an underestimation of the residual risk by river-mile. Consistency and conservatism should be used for remedy selection as well as future evaluations and compliance metrics.
 - c) Residual risk and HIs for RAO 2 were calculated using risk-based sediment PRGs protective of fish/shellfish consumption and likely underestimate the total residual risk for all COCs. In the FS, it is stated that *“risk-based sediment PRGs protective of fish/shellfish consumption were not developed for arsenic, hexachlorobenzene, mercury, BEHP, pentachlorophenol, and PBDEs because a relationship between fish and/or shellfish tissue and sediment concentrations could not be determined.”* Residual risk calculations should estimate the cumulative risk for the Site and include all Site COCs.
- 3) EPA concedes that *“estimating the number of acceptable fish meals at the end of construction is not a precise calculation, but is rather a prediction that has some degree of uncertainty.”* However, no discussion of the uncertainty is presented, undermining the validity of these comparisons. A discussion of uncertainty surrounding the fish consumption issue must be included.
- 4) The Preferred Alternative does not reduce risk to acceptable levels post-construction. The RALs and interim risk targets are not protective. Allowing for varying RALs across the site that are orders of magnitude different in concentration and risk does not make sense and is not protective of receptors, especially benthic organisms, organisms utilizing shallow and higher habitat value areas, and beach users. The interim risk targets set for the 9 RAOs are not achievable by Alternative I and/or are unclear. Only one interim risk target (RAO 5, sediments, protection of benthic receptors) is predicted to be met

⁶ Polissar, et al. *A Fish Consumption Survey of the Nez Perce Tribe, 9/30/15 Final Draft for ID DEQ*. September 30, 2015.

under Alternative I, although it sets the bar low with a limited target of cleaning up only 50% of sediments in areas exceeding 10 times the PRGs. Alternative I leaves the majority (83%) of the benthic receptors exposed to long-term unacceptable risk (by exceeding one or more PRGs) and they cannot be protected by institutional controls. Interim risk targets for impacted riverbank and groundwater-to-surface water discharges are not clearly stated and these sources are left largely unaddressed in the Proposed Plan with no clear direction on cleanup goals or plans on the areas not included in Alternative I. Surface water interim risk targets are not defined either. Alternative G RALs should be selected to provide a cleanup that will be more protective post-construction and more likely to achieve longer-term RAOs. The ROD should provide clearer directives and post-cleanup construction goals for all impacted media, including riverbanks, groundwater plumes and surface water.

- 5) The FS and the Proposed Plan provide little, if any, quantifiable support that achievement of the RALs, interim risk targets, and PRGs will allow the final RAOs to be achieved in a reasonable period of time. The level of uncertainty in the ability of any of the alternatives to achieve acceptable risk levels is also never discussed. The uncertainties included in each alternative, in addition to the potential risk that each alternative may not achieve the RAOs in a reasonable period of time, should be clearly discussed.

In order to address the uncertainty in the evaluation of the alternatives and the likelihood that the alternatives achieve RAOs, a conservative and protective approach should be taken for selecting an appropriate alternative. Alternative G with modifications is the FS alternative that best meets these criteria. In addition, the ROD must use a consistent and conservative approach to calculate and select protective interim cleanup goals and final cleanup levels.

vi. NRRB Recommendation on Risk Level Uncertainty

The boards' review of the proposed cleanup action resulted in the following important

recommendation⁷ that was overlooked or not included in the Proposed Plan, and should be included in the ROD. The levels of risk identified and communicated in documents prepared by the Region omit important information to evaluate uncertainty in some exposure pathways and do not fully address supporting information on the conclusions presented about risk to human health and the environment *“...based on the information represented to the boards, some conclusions about risk did not fully communicate the risk characterization (the severity, spatial, or degree of confidence of the risk estimate) and how the remedy components will address Site risks.” “The boards recommend that the decision documents clearly explain how the proposed remedial action would achieve each RAO.”*

b. Partial Cleanup

i. Areas Not Cleaned Up

The Proposed Plan represents a partial cleanup that over relies on natural recovery (primarily dispersion) and will result in the continued release of persistent and bioaccumulative contaminants downstream to the Columbia River. The FS states, *“Since much of the site is erosional or transitional (deposition in some parts of the year and erosional in others) and contaminant mass exists in the river sediment, there is the potential for the contamination to be transported downstream.”* The FS also states, *“The area where contamination in sediment exceeds the human health PRGs within the Site is approximately 2,190 acres and 30,048 lineal feet of river bank”*, which encompasses essentially the entire Site. In addition, the FS and Proposed Plan confirm that river banks and groundwater plumes are an ongoing source of contamination to the Site. A significant amount of the site will not be cleaned up and will continue to be a source of contaminated sediments to the downstream Multnomah Channel and Columbia River.

EPA’s remedy should not leave so much of the contamination unaddressed, especially given the significant uncertainties that the PRGs will ever be met. The Proposed Plan will NOT address:

- 87% of the sediment area exceeding human health risk PRGs:

⁷ United State Environmental Protection Agency. *Memorandum, National Remedy Review Board and Contaminated Sediment Technical Advisory Group Recommendations for the Portland Harbor Superfund Site*. December 31, 2015.

- 67% of the contaminated groundwater plume area;
- 83% of the sediment area exceeding benthic risk PRGs;
- 35% of the length of contaminated river banks;
- and unclear amounts of risk from surface water to receptors and from prey to predators.

These are Site-wide post-construction estimates. By compositing Site-wide risk, significant areas of the river sediments would present much higher risks, and some lower.

The Proposed Plan compares alternatives in terms of percent of area or length cleaned up and interim (post-construction) or residual risk. However, the ROD should also should provide estimates of the volume and mass of contamination at the site both before and after cleanup construction. This information will be further refined through the remedial action in phase in order to report on the volume and mass of contamination removed, capped, treated, and left behind for all impacted media.

ii. Non-Compliance with Short and Long-term Risk Goals

EPA's evaluation of short-term or post-construction risk (at 7 years after the start of cleanup) clearly shows that Alternative G would come closer to achieving all interim risk targets (Table 1), would result in lower risk to receptors, and would bring a much larger area of the Site closer to compliance with long-term PRGs and RAOs (Table 2).

Table 2 - Magnitude of Risks at 7 years (cleanup construction completion)

Goal	Criteria	Preferred Alternative I Post-Construction Risk	Alternative G Post-Construction Risk
RAO 1	Ingestion/Skin contact	2×10^{-5} (sediment) Not quantifiable (beach)	6×10^{-6} (sediment)
RAO 2	Fish Consumption	2×10^{-4} HI (child) = 21 HI (infant) $\leq 1,320$	8×10^{-5}
RAO 3	Surface Water Contact	PCBs factor of 7 x PRG TCDD factor of 5 x PRG	PCBs factor of 3 x PRG TCDD factor of 3 x PRG
RAO 4	Groundwater Migration	67% of area not addressed	38% of area not addressed
RAO 5	Benthic Organisms	>36% of area not addressed*	>7% of area not addressed*
RAO 6	Consumption of Prey	HQs >10 for some COCs	Unknown
RAO 7	Contact Surface Water	Unknown	Unknown
RAO 8	Groundwater Migration	67% of area not addressed	38% of area not addressed
RAO 9	River Bank Migration	35% not addressed	12% not addressed

- *Source: Portland Harbor Feasibility Study Table 4.3-1*
Represents Site-wide cancer and non-cancer risk estimates (or other metrics) at post-cleanup (7 yrs)
- Benthic cleanup evaluations are based on of areas exceeding 10xPRGs. The area not addressed for the benthic community would be much greater if based on the PRGs (ex. 83% for areas exceeding the PRG for Alt I, unknown for Alt G).

As demonstrated by Table 3 below, EPA's Proposed Plan evaluation of long-term or residual risk at the end of the recovery period or reasonable restoration timeframe (time = 30 years) is very incomplete and unclear. We would argue that the residual risk calculated for RAOs 1, 2 and 6 are also unknown and that the long-term effectiveness of Alternative I, or Alternative G for that matter, is highly uncertain.

Table 3 - Magnitude of Residual Risks at 30 years

Goal	Criteria	Preferred Alternative I Residual Risk (30 years)	Alternative G Residual Risk (30 years)
RAO 1	Ingestion/Skin contact	6x10 ⁻⁶ (sediment) 9x10 ⁻⁶ (beach)	6x10 ⁻⁶ (sediment)
RAO 2	Fish Consumption	8x10 ⁻⁵	8x10 ⁻⁵
RAO 3	Surface Water Contact	Unknown	Unknown
RAO 4	Groundwater Migration	Unknown	Unknown
RAO 5	Benthic Organisms	Unknown	Unknown
RAO 6	Consumption of Prey	HQ ≤ 1	HQ achieves RR for all COCs
RAO 7	Contact Surface Water	Unknown	Unknown
RAO 8	Groundwater Migration	Unknown	Unknown
RAO 9	River Bank Migration	Unknown	Unknown

- Source: *Portland Harbor Feasibility Study*, Table 4.3-1
Represents Site-wide cancer and non-cancer risk estimates (or other metrics) at the end of the reasonable restoration timeframe (30 years)
- Benthic cleanup evaluations are based on of areas exceeding 10xPRGs. The area not addressed for the benthic community would be much greater if based on the PRGs (ex. 83% for areas exceeding the PRG for Alt I, unknown for Alt G).

Feasibility Study Alternative G with modifications addresses more of the contaminants and remedial action objectives than Alternative I, the proposed cleanup. Within the ROD there should be a transparent process with clearly defined criteria for each type of contaminated media at the Site that will be used to evaluate compliance with interim targets and cleanup levels upon completion of each phase of construction and at the completion of construction activities. This process should be used to evaluate the success of the active cleanup by evaluating the level of risk that remains at the Site upon completion of construction activities. If risk levels and compliance criteria do not comply with stated goals, then contingency efforts should be implemented to ensure that the cleanup moves toward achieving the RAOs by reaching remediation goals and the target residual risks within the stated recovery timeframe. Risk calculations should be conservative and include all COCs and not be limited to compounds where there is a direct correlation between sediment concentration and fish tissue.

iii. Over Reliance on Monitored Natural Recovery

Reliance on Monitored Natural Recovery is neither appropriate for all assigned site areas, nor is it supported by Site data. The Preferred Alternative (Alternative I) relies

on monitored natural recovery (MNR) to achieve remedial goals over 1,876 acres, or 87 percent of the Site. Greater removal of hotspots (lower RALs) as well as additional dredging of targeted higher priority areas is needed.

The selection of MNR for persistent and bioaccumulative chemicals, such as those found at Portland Harbor, is a practice that is widely discouraged in both mainstream science, as well as multiple federal and state guidances. These chemicals will take 100s to 1,000s of years to break down and will continue to affect the ecological food web for much longer than the reasonable restoration timeframe.

Based on a natural recovery evaluation presented in the FS, two of the Sediment Decision Units (SDUs, RM 6NAV and RM 11E) “*scored unfavorable for natural recovery*”, and over the remainder of the Site “*natural recovery processes are neutral*.” The evaluation clarifies that this does not indicate that natural recovery is not occurring, “*but rather that it is less likely to occur through depositional processes*.” The FS information on depositional rates also indicates that the majority of the Site is characterized as either erosional or “transitional.” However, the FS and Proposed Plan text make conclusions contradictory to the supporting data and evaluations. The FS concludes that the “*primary mechanism for MNR is through deposition*.” The Proposed Plan characterizes the Site as increasingly depositional, with the exception of river miles 5 to 7. These broad-sweeping, over-generalized conclusions stated in Feasibility Study and Proposed Plan about the Portland Harbor site (or major portions there-of) being a depositional environment, and therefore ideal for MNR, are misleading and not supported by site data or evaluations. They must be corrected.

Since natural recovery for MNR areas of the Site is “*less likely to occur through depositional processes*” it appears that for the majority of the Site area dispersion is the primary mechanism being relied on for natural recovery. Because of this, contaminants remaining in the areas proposed for MNR (87 percent of the Site) would likely be mobilized and transported downstream and into the Columbia River where they will continue to contribute impacts to Treaty-reserved resources. This non-transparent and unstated expectation that dispersion will be the primary cleanup mechanism for up to 1,876 acres of persistent and bioaccumulative toxicity is irresponsible.

In addition, Alternative I relies on leaving contamination in place, without consideration of ecological use, habitat values or plans for restoration. This does not

take into account the need for connectivity, or a linear sequence of non-toxic and restored habitats that provide habitat for resting, feeding and predator avoidance along fish migratory routes throughout the Portland Harbor corridor. For example, Alternative I selects the highest concentration (least protective) RALs at the most downstream end of the site, an area that encompasses 4 pending restoration projects (PGE Harborton, Linnton Plywood, Miller Creek, and Alder Creek) and Sauvie Island properties that have the potential for higher habitat value. The ROD needs to select a remedy that provides greater protectiveness in areas with higher habitat value and ecological use.

Because a long-term model is not available to predict the time to meet the PRGs, interim targets for risks and hazard indices were established to evaluate the potential for achieving PRGs in a reasonable time frame, which was considered to be 30 years. However, the alternatives that rely most heavily on MNR, including the Preferred Alternative, fail to meet the interim targets for several RAOs, and for other RAOs there is insufficient information to evaluate the likelihood of meeting the remedial goals. While there is significant uncertainty in the assumption that achieving interim targets post-construction will result in achieving PRGs in a reasonable time frame, it is even more uncertain when the Preferred Alternative would not even result in meeting the interim targets.

One of the factors in determining whether a recovery time frame is reasonable is the uncertainty associated with the time frame prediction. However, the Proposed Plan does not discuss this uncertainty. The ROD must provide sufficient information to support the statement that 30 years is a reasonable time frame, and that the Preferred Alternative will achieve RAOs within that time frame, including a discussion of uncertainties. It should also include a clearer timeline for pre-construction activities, cleanup construction start and completion, restoration timeframe start and completion, monitoring and institutional controls, administrative steps, etc.

The ROD should select Alternative G with modifications to expand dredging along heavily used shoreline areas, in shallow water critical habitats, in areas with restoration or mitigation plans, in areas with higher potential for recontamination due to upland sources, and in highly erosional segments. It is more likely to meet interim risk-based targets, significantly reduce the uncertainty associated the remedy's ability to meet remedial objectives, and improve ecological function of the

corridor. The Proposed Plan also needs to include a summary of upland source control effectiveness and how ongoing sources will affect natural recovery.

iv. Enhanced Monitored Natural Recovery (ENR) Uncertainty

Enhanced monitored natural recovery using a thin layer (ex. 6 inches +/- of sand with activated carbon) is not a proven remediation technology for the Portland Harbor Site suite or concentrations of COCs and in sediments of similar characteristics. EPA states in the Duwamish ROD Responsiveness Summary that *“The only relatively new technology proposed is the use of activated carbon with ENR, which is why pilot testing will be conducted before determining where and how to implement this technology.”* We understand that for this reason, ENR pilot studies will be conducted in various plots at the Duwamish Site to better understand that ENR methods (similar to those described for Portland Harbor) will even be an effective technology.

EPA also clarifies that ENR is only appropriate for low scour potential areas with lower contaminant concentrations. However, the Preferred Alternative proposes significant use of ENR in areas with higher scour potential, such as Swan Island Lagoon. In addition the Proposed Plan states that monitoring and institutional controls are typically not required for ENR.

The over reliance on ENR is highly uncertain in its long-term effectiveness and does not support treaty rights. We argue that the need for ENR should be minimized by increasing the dredge footprint, its use should be avoided in higher scour potential and non-depositional areas and in areas of boat traffic, it is only appropriate for low levels of contamination, pilot studies are needed to confirm its effectiveness, and monitoring and institutional controls are necessary.

v. Mitigation of Nearshore Habitat Impacts Needed

The lower Willamette River provides habitat for a variety of animals (invertebrates, fish, birds, mammals, amphibians, reptiles) and aquatic plants which has been designated by the National Marine Fisheries Service as a critical habitat for several threatened or endangered salmon species that migrate through the Site.

The Yakama Nation has treaty-reserved or other fishing rights in areas impacted by the Site. Protection of these rights depends upon the success and permanence of the cleanup implemented. The Preferred Alternative does not adequately address the protection and mitigation of these key habitat areas. Alternative G will provide

greater long-term, more permanent, mitigation of contaminated sediments along shorelines, shallows, and higher-value habitat areas and in areas exceeding benthic criteria to help further a safer, healthier, and more abundant fishery in the lower Willamette River. In addition, ongoing, controlled discharges from groundwater and other upland sources that continue to pollute the river should be addressed immediately, and implementation of remedies should be done in a manner that avoids, minimizes, or compensates for habitat disturbance or loss. Nearshore water quality and habitat must be adequately cleaned up and protected to support a healthy and sustainable fishery.

vi. McCormick and Baxter Superfund Site

Yakama has concerns about the significant amounts of contamination left behind at the McCormick and Baxter Superfund Site, located within the Portland Harbor Superfund site. We understand that a ROD amendment for McCormick and Baxter will be prepared following the release of the Portland Harbor ROD and look forward to commenting on it. Short-term and long-term performance of the McCormick and Baxter remedy must be adequately monitored and evaluated, and contingencies implemented if warranted. This remedy must be protective of, and not re-contaminate the Portland Harbor cleanup. In addition, the relationship between the McCormick and Baxter Superfund Site and the Portland Harbor Superfund Sites should be more clearly explained in the ROD.

c. Cost

Until threshold criteria have been met, cost criteria cannot be considered. 40 CFR §430(f)(i)(B) (cost is a primary balancing criterion). Beyond this non-starter, we provide the following comments on cost.

i. Cost Estimate Inaccuracies

The accuracy of cost estimates associated with the alternatives is of concern. The Proposed Plan and the Feasibility Study do not present data or provide scientific information that supports the assumption that the Site will be cleaned up within a 30-year time frame. Therefore, in order to accurately compare costs of a selected remedy, the cost for each alternative should incorporate a contingency or probability factor for each alternative that incorporates the possibility of that alternative not reaching cleanup goals within the 30-year time frame. If cleanup goals are not met, additional remedial activities are likely to be required at

additional cost. For example, the probability of achieving remedial goals within a reasonable time frame (estimated at 30 years) using Alternative I is much less than if Alternative G was selected. Therefore, costs associated with implementing Alternative I to reach cleanup goals could be greatly under estimated if additional remediation is needed later. In addition to potential future dredging costs that would be needed in 30 years if RAOs aren't met, there would be other additional costs as well. These repeat costs may be avoided if a more thorough cleanup alternative, such as Alternative G, is selected now to increase the probability of meeting RAOs.

Many of the costs associated with addressing Site issues are not included in the cost evaluation for each of the proposed alternatives and the estimates proposed may not represent actual costs to implement any of the proposed alternatives. For example, contaminated sediment in the navigation channel does not appear to be included in costs estimates. These costs may be deferred to other agencies, like the U.S. Army Corps of Engineers, who will be required to address contaminated sediments during maintenance dredges of the channel and deepening the navigation channel. In addition, costs associated with mitigating groundwater contamination or recontamination from adjacent upland sources are not included the estimated costs. Cost estimates do not consider efforts to address controlled upland sources impacts river sediments and surface water quality.

ii. Cleanup Heavily Biased Towards Cost

The messaging and politics surrounding cost and effectiveness have been heavily biased and have resulted in a remedy selection that is primarily cost-based. If allowed, EPA's Preferred Alternative I would be a big win and a huge cost savings for the responsible parties (and their insurers), and a huge loss for the health of the community and environment.

Yakama recommends Alternative G with modifications. However, it is disappointing that EPA's FS did not present a suite of alternatives that met CERCLA threshold criteria. Understanding that anything we propose outside the FS would not likely be considered by EPA, we are forced to work with this Alternative G because we feel that it offers the greatest protection of Alternatives A through I. This is a frustrating situation, however, recognizing these limitations we propose that, with the additional modifications offered here-in, Alternative G would help prioritize protection of important environmental resources.

The Lower Willamette Group (LWG) has continuously drawn their lines based on cost and has disrespectfully pressured EPA to choose a more “reasonable” (i.e. cheap) remedy by lobbying intensely, investing in public outreach, and littering the Site Record with one-sided accusations towards EPA, while ignoring their own role in feet dragging and refusing to conduct adequate site investigations. To date the responsible parties have been successful in applying political pressure to EPA, who has repeatedly and inappropriately allowed cost savings to be the dominant or primary remedy selection criteria. The selection of a remedy must not be dismissive of the remaining CERCLA evaluation criteria. EPA and the responsible parties continue to publically broadcast a biased, non-transparent sales-pitch (or “public outreach campaign”) highlighting reductions in contamination, but minimizing the facts regarding what contamination, risks, and restrictions will remain. In addition, the responsible parties have included exaggerated scare tactics in their outreach about how cleanup will cause a loss of jobs and that cleanup costs will be transferred to the public. A more fair discussion and evaluation of cost should include the economic benefits from cleanup, which have proven to be substantial elsewhere.

Yakama Nation’s recommendation for Alternative G IS reasonable and more protective than Alternative I. For example, the Portland Harbor Site is often compared to the Lower Duwamish Waterway Superfund Site (Duwamish) in Washington. The Portland Harbor Site is 5 times larger by area than the Duwamish Site. However, EPA’s Preferred Alternative I, in comparison with the Duwamish ROD, has higher (less protective) PCB RALs and PRGs, would only dredge 1.5 times more sediment, be roughly 2.5 times more expensive, and take the same length of time to implement. Yakama Nation’s preferred Alternative G, in comparison with the Duwamish ROD, also has higher PCB RALs and PRGs, but would dredge roughly 5 times more sediment, be roughly 5 times more expensive, would take less than 3 times longer to implement. While this comparison is a far cry from a cost analysis, it highlights the fact that Portland Harbor is a much larger “mega Superfund” site with much greater contamination problems and therefore should be expected to cost more. To reiterate, both Alternatives I and G would leave behind greater concentrations of contaminants (and resulting risk) than the Duwamish ROD.

Portland Harbor involves over 150 PRPs, is comprised of multiple NPL and non-NPL listed cleanup sites and a large upland source area. If dealt with individually Portland Harbor cleanup would be much more expensive to cleanup than collectively. By

cooperatively working together with EPA as one large mega-Site, the responsible parties have the potential for significant cost savings.

In addition, experience has shown that sites that choose cheaper, partial cleanups risk being more expensive in the long run due to factors such as monitoring and O&M expenses over longer recovery periods, lack of natural recovery due to remaining contamination, remedy failure, unresolved contamination liability issues, decreased property value, inability to pursue loans, etc. We have witnessed multiple sites where cleanup had to be supplemented or, in some cases, even redone. One doesn't need to look very far for case studies. For example, recent news coverage on the 2009 Hudson River PCB sediment cleanup indicates post-cleanup monitoring results have spurred the NY State Department of Environmental Conservation (who provided State concurrence on the ROD) to demand additional cleanup.

The responsible parties and their insurers must be called to task. Polluters must pay to restore the health of the river. It is not conscionable (or allowable by CERCLA) to expect that the health of the people and environment must instead pay in order to preserve the profits of the responsible parties.

d. Yakama Nation Recommendations

The Preferred Alternative (Alternative I) is a very limited or partial cleanup, riddled with uncertainties, inconsistencies, contradictions and uncertainties. However, the FS and Proposed Plan conclude that Alternative I “*would comply with ARARs*”, would be protective of human health and the environment, would meet the threshold criteria, and would reduce fish consumption advisories in a reasonable restoration timeframe. The reality is that these conclusions are not supported in the Proposed Plan or Site Record. In addition, a decision to choose a cheaper remedy that does not meet threshold requirements cannot be allowed by CERCLA. Among other problems, Alternative I would result in fish consumption advisories on the Lower Willamette River due to contaminants from the Site to be in place after construction of the remedy, after the recovery period of 30-years, and likely forever. The ROD should provide a more detailed evaluation to substantiate remedy selection conclusions, particularly in light of the preferred alternatives' inability to achieve interim targets. Of the action alternatives, a modified Alternative G appears the most likely to achieve interim targets for the greatest number of RAOs, and would therefore be the alternative most likely to comply with ARARs and result in fish consumption advisories more in line with the rest of the Willamette River.

IV. ROD Elements Needed

EPA should include a number of additional actions in the ROD to ensure that the remedy is protective of human health and the environment. Requirements for additional data collection and analysis, environmental justice studies, source control measures, disposal alternatives, and other important elements are currently lacking but certainly necessary for adequate implementation of the remedial action for Portland Harbor.

a. Studies and Monitoring

i. Studies

A number of key studies are needed in order to develop an accurate and comprehensive understanding of the Site. This information will be required for remedy design, evaluation of implementation progress, future evaluation of compliance with remedial goals, and to assess if Site RAOs are achieved.

Background and Downstream Baseline and Ongoing Monitoring: Background concentrations in surface water, sediment, and fish tissue will need to be established upstream of Portland Harbor. Similarly, impacts downstream of the Site should also be assessed and catalogued for comparison, assessing migration of contamination, and evaluating impacts to the Columbia River before and during implementation of the remedy. Monitoring should include the Willamette River, Multnomah Channel, and Columbia River downstream areas.

Delineation: Within Portland Harbor, the distribution and depth of contaminants throughout the Site should be documented for remedy design, among other concerns, in order to ensure that Principal Threat Waste has been successfully treated or removed and to record where contamination will be left behind.

Sediment Transport and MNR: Given the Preferred Alternative relies heavily on MNR (with some ENR), an accurate understanding of the sediment transport regime with Portland Harbor is critical to ensure progress towards remedy goals and that contaminants from the Site are not removed (eroded) from Site sediments only to be transported and deposited in off-site areas downstream in the Columbia River or Multnomah Channel. Currently, no sediment model has been accepted by EPA and the site record, as well as comments made by EPA, indicate that the Site is largely erosional or transitional (at times erosional or depositional depending on river character). If MNR is to be relied upon as a technology for the remedy, there should be empirical data and multiple lines of evidence that support its selection as an

appropriate technology to implement at this, including a better understanding of sediment transport. Given the large uncertainties in existing models and an understanding that the Site is “net erosional”, implementation of Alternative G with removal and treatment of more contaminated sediments would ensure a more protective remedy.

ii. NRRB Recommendation on Performance Monitoring

The boards’ review of the proposed cleanup action resulted in several important recommendations including⁸: *“The boards note that at many large contaminated sediment sites, monitoring plays an important role in remedy performance evaluation.” “The boards recommend that the Region address and clarify the role of a monitoring plan in the site decision documents.”* This recommendation appears to have been overlooked or not included in the Proposed Plan, and should be included in the ROD.

iii. Clear Metrics and Monitoring Goals

Monitoring is an invaluable evaluation tool that can be used to assess the completeness of remedy implementation, remedy effectiveness, and the need for contingency actions. The proposed cleanup plan does not clearly define how Site progress will be evaluated and how compliance with regulatory requirements and cleanup objectives will be measured. Without clearly outlining compliance criteria or metrics, a meaningful assessment of the project progress cannot occur. In addition, if the cleanup does not proceed as expected, there is no contingency plan in place to ensure protectiveness for human health and the environment. The ROD must include more adequate detail on how progress and compliance will be measured. More clear and specific information is needed on interim and long-term metrics, how and where they will be monitored or evaluated, timelines, and contingencies.

Clear Framework and Metrics: Although, the specific details of monitoring programs are prescribed in project or action-specific monitoring plans, the overarching goals and program implementation should be made more clear in the ROD. The Proposed Plan does not, but should, explain how monitoring will be integrated into the cleanup process and clearly define monitoring goals or key elements. In addition,

⁸ United State Environmental Protection Agency. Memorandum, National Remedy Review Board and Contaminated Sediment Technical Advisory Group Recommendations for the Portland Harbor Superfund Site. December 31, 2015.

more clear metrics on post-construction, interim, and long-term goals during the recovery period are needed. Within the ROD, each monitoring program should be clear in its goals, process, scaling, metrics, frequency, trigger events, etc. for assessing compliance and meeting project goals.

Points of Compliance: The identification of areas of attainment or points of compliance are a fundamental component in the design and implementation of monitoring programs to evaluate site conditions for setting baseline values, but also for ensuring that data collected throughout the project is consistent and collected as designed for its intended purpose and in such away to be useful in evaluating progress towards the cleanup objectives. Areas of attainment or points of compliance should be clearly defined for all COCs and all impacted media that support achieving the RAOs within the defined compliance period.

Upland Sources: The complexity and size of this Site requires careful management and an understanding of the impacts associated with current, on-going, and potential future releases from upland sources (groundwater, stormwater, bank erosion, overland flow, and overwater acts); the migration of contaminants from upstream sources; and the removal of contaminants to offsite areas in the Columbia River basin. The integration and planning of effective monitoring programs will be a key element to monitoring cleanup progress and should be included in the remedial plan.

Contingency Actions: Future project decision documents should identify contingencies triggered by threshold criteria, identified action, implementation timeframe.

Yakama's Role: Yakama has significant concerns about monitoring and expects to participate in development of monitoring strategies for Portland Harbor.

Example Monitoring Needs by Media Type: Examples of important monitoring programs and target media are summarized in the table below. For example, in-water groundwater plumes should be delineated and monitored in order to evaluate areas of potential recontamination concern and to assess that source control measures are implemented and effective. Fish tissue monitoring will be essential to evaluate progress towards removing Site-specific fish consumption advisories and other institutional controls that limit the beneficial use at the Site. Surface water quality, upstream loadings, and the downstream migration of contaminants will be

fundamental in evaluating impacts from the Site to the Columbia River, impacts from implementation of the remedy, and compliance with ARARs.

Table 4 - Examples of media and monitoring types

Baseline/ Design	Background/ Downstream Impacts	Upland Sources	Construction	Performance	Compliance
Surface Water	Surface Water	Groundwater	Air	Surface Water	Surface Water
Sediment	Sediment	Overwater	Surface Water	Sediment	Sediment
Bank Sediment	Tissue	Outfalls	Tissue	Bank Sediment	Bank Sediment
Tissue		Stormwater	Sediment	Tissue	Tissue
Aquatic Fauna		Bank Sediment	Cap Materials	Aquatic Fauna	Aquatic Fauna
Porewater		Porewater/seeps		Porewater	Porewater
Groundwater		Sediment		Groundwater	Groundwater

iv. Caps and Daily Cover Materials Acceptance

The ROD must outline acceptance criteria that meet the PRGs, applicable ARARs for all contaminants, and construction quality criteria for imported cap and daily cover materials.

v. PCB Methodology

PCB criteria (RALs and PRGs) are stated in the Proposed Plan; however, the methodology is not specified. The ROD must specify that for all media PCB analysis should include all congeners, and not simply aroclors. The aroclor analysis does not include all congeners, has higher detection limits and therefore is under-representative of risk. The advantages of congener analysis are that data are more representative of site conditions and therefore more useful for understanding toxicity, risk, weathering, biotransformation, causation, as well as fingerprinting sources. We understand there are reasons to include aroclor analysis such as outdated CWA water quality criteria. This is an example of how science has evolved and improved, but regulations have not kept up. If aroclor data are needed for certain media, it should be in addition to congener analysis and not in place of it.

vi. Environmental Justice

An environmental justice analysis of the Portland Harbor Site has been completely overlooked (see 2014 Duwamish ROD, sections 6.1, 10.3.3, and 13.2.8) and should be conducted.

b. Procedural

i. Cleanup Sequence

In past conversations with EPA, management indicated that cleanup would be sequenced in the order in which responsible parties were willing to cooperate. We strongly urge remedy implementation to be sequenced so that dredging is conducted starting at the upstream end and working downstream in order to prevent recontamination.

ii. Waivers

The ROD must clarify how, under what circumstances, and at what point in time a waiver of ARARs may be considered. For example, a use attainability analysis (UAA) or other evaluation supporting a technical impracticability (TI) waiver.

iii. NRRB Recommendation to Define Recovery Timeframe

The boards' review of the proposed cleanup action resulted in several important recommendations⁹ that were overlooked or not included in the Proposed Plan, and should be included in the ROD.

The boards recommended that U.S. Environmental Protection Agency (EPA) Region 10 (the Region) *"clearly communicate to the local community and other stakeholders the anticipated timeframe needed to carry out the cleanup's active phases, including the time needed to undertake the remedial design and the remedial action phases, and to clearly describe the anticipated recovery time needed after completion of the selected remedy's active phase, such time as the time aquatic receptor tissues will need to recover."*

⁹ United State Environmental Protection Agency. Memorandum, National Remedy Review Board and Contaminated Sediment Technical Advisory Group Recommendations for the Portland Harbor Superfund Site. December 31, 2015.

iv. Five Year Reviews

The ROD must clarify the schedule for 5 year reviews. For example, we understand these reviews can vary beginning 5 years after construction starts or ends. In the case of Portland Harbor, a construction period of 7 years or longer justifies a the need for a more formal evaluation(s) during construction to help understand how effective the cleanup is and, if needed, adjust the cleanup design or construction strategy. Five year reviews should include an evaluation of the need to implement new sediment remediation technologies to assist in the further reduction of Contaminants of Concern in sediments, surface water and/or fish tissue (ex. Duwamish 2014 MOA).

v. Contingency Plan

Given all the uncertainties, the remedy selected should include appropriate contingency measures. EPA's Contaminated Sediment Remediation Guidance for Hazardous Waste Sites¹⁰ states that contingency measures should be included as part of a MNR remedy when there is significant uncertainty that the remedial action objectives will be achieved within the predicted time frame. For example, new technologies can be incorporated into an Explanation of Significant Difference (ESD) or ROD amendment after the ROD is issued, based on five year reviews. EPA has authority to alter the remedy even if the change or associated cost increase differs substantially from the ROD. See NCP at 40 CFR § 300.435(c)(2).

In light of the multiple layers of uncertainties associated with Alternative I, the ROD should identify the contingencies that will be implemented if an alternative is not achieving the interim risk targets and not recovering towards RAOs after implementation at an adequate rate. This should be included in what is to be provided to the public for review, along with a clear timeline and criteria for the decision to move forward with a contingency plan. Additional contingencies could include increased dredging, in situ remediation, enhanced MNR (EMNR), source control, new remediation technologies, etc. We suggest a timeline of 10 years post cleanup construction (ex. Duwamish ROD) for making decisions regarding the need for contingencies. Robust monitoring would be needed to evaluate site conditions and recovery rates.

¹⁰ U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. 2005. *Contaminated Sediment Remediation Guidance for Hazardous Waste Sites*. EPA-540-R-012. OSWER 9355.0-85 December.

c. Source Control

i. Background

Background sediment samples collected at river mile 16 (RM16) are located in close proximity to a known PCB source (a waste water treatment plant per conversation with EPA). ODEQ has also summarized data gaps and source control needs for inputs upgradient of the site. EPA has stated that they will continue to pursue evaluation of anthropogenic background values at RM16, despite influence by known and ongoing sources, yet has failed to provide information on the problems and uncertainties associated with background values in the Proposed Plan. The ROD must include a transparent written and visual description of upgradient sources and rationale for their decision to continue using RM16 to establish background based cleanup levels. Background anthropogenic sources should also be addressed in regional source control efforts.

ii. NRRB Recommendation for Managing Source Control

The boards' review of the proposed cleanup action resulted in several important recommendations¹¹ that were overlooked or not included in the Proposed Plan, and should be included in the ROD. *"The boards recommend that the Region work with the State to establish a timeline for upland source control of contaminants to the Willamette River so that upland remediation can take place before or at the same time as in-water treatment and dredging/capping of river sediment. The boards further recommend that the Region work with the State to ensure that surface water/groundwater discharged into the river from all of the more than 100 contaminated upland locations meet the relevant maximum contaminant levels. In addition, the boards recommend that the Region consider including in its decision documents clear criteria for evaluating when source control is sufficient to start remedial action, and that EPA continue to work with the State to ensure that source control actions are completed in a timely fashion. The boards also recommend that the Region consider whether undertaking source control actions using CERCLA or other federal authorities might be appropriate to ensure the EPA-selected remedial action's integrity."*

¹¹ United State Environmental Protection Agency. Memorandum, National Remedy Review Board and Contaminated Sediment Technical Advisory Group Recommendations for the Portland Harbor Superfund Site. December 31, 2015.

iii. Upland Source Control Needs

Upland Source Control remains uncontrolled without a clear plan on when it will be implemented. Within the ROD, EPA must provide greater transparency and directives regarding the progress and effectiveness of upland controls, as well as a summary of data gaps, source control needs, and strategy.

Source control is jointly tackled by multiple agencies including EPA, ODEQ, and City of Portland, with the 2005 *Portland Harbor Joint Source Control Strategy* document¹² guiding efforts. This plan should be updated as soon as possible, and should continue to be updated periodically. New information and changes in sources have undoubtedly occurred in the past 11 years, and the prioritization of sites, as well as the source control framework and strategy needs to be re-evaluated.

The most recent and comprehensive source control summary was prepared by ODEQ in 2016. Although progress has been made, this document has identified an overwhelming number of unresolved data gaps and source control needs surrounding the Portland Harbor site, as well as upstream. The ODEQ implementation of upland source control remedies is intended to eliminate, control or minimize all sources of contaminants from on-going and future discharges of stormwater, groundwater, soil erosion, and other direct sources to the Portland Harbor Site. With respect to upland cleanup sites, ODEQ's management of Portland Harbor is currently primarily a voluntary process and many of the cleanups appear to be interim (partial cleanups), rather than final actions. ODEQ does not seem to be effectively utilizing its removal authority to require immediate design and implementation of permanent source control measures prior to implementation of the remedy at the Portland Harbor Superfund Site. Many sites have documented uncontrolled sources, investigations only partially completed, or property owners who have never responded to site assessment requests.

Currently, there are numerous upland sites with moderate or high recontamination potential for the Portland Harbor cleanup. All of the sites listed in the table below

¹² Oregon Department of Environmental Quality and United State Environmental Protection Agency. *Portland Harbor Joint Source Control Strategy*. December, 2005.

have current, on-going, uncontrolled releases to the lower Willamette River.¹³ In addition to these sites, ODEQ has identified numerous facilities or areas where releases are suspected but investigations have not been completed.

Table 5 - Current and On-going Uncontrolled Upland Releases to the lower Willamette River by Pathway

	Groundwater	Stormwater	Bank Erosion	Overwater Acts	Overland Flow
Arkema	x		x		
Container Mgmt	x	x			
EWB		x			
Front Ave LLP – Hampton Lumber			x		
Front Ave LLP – Glacier NW		x	x		
GS Roofing	x		x		
Gunderson		x	x		
Lampros Steel		x			
NW Nat./Gasco	x	x	x		x
ODOT		x			
Port - OU1 & OU5			x		
Port - T4		x	x		x
Premier Edible Oils	x		x		
Rhone Poulenc	x	x	x		
Schnitzer Burgaard Industrial Pk (various)	x	x	x		x
Siltronic Corp.	x		x		
Univar	x	x			
US Moorings (USACE)	x	x	x	x	
US Navy Reserve	x	x	x	x	x
Vigor/ Portland Shipyard	x	x	x	x	
Willamette Cove	x		x		

- x = data collected from Regional Sites Tables and highlighted as “Uncontrolled.”

¹³ Oregon Department of Environmental Quality. 2016. *Portland Harbor Upland Source Control Summary Report*. November 21, 2014. Revised March 25, 2016.

If the ODEQ cleanup program remains voluntary and control of these sites is not completed once the sediment remedy is implemented, the risk for recontamination of sediments through unmitigated groundwater, stormwater, and other direct discharges to the river remains high. The ROD needs to provide a clear timeline and strategy for how EPA and the state will apply their collective authorities at these state-lead upland suspected or confirmed cleanup sites that impact Portland Harbor where investigations and cleanups are not moving forward adequately (or not at all in some cases). There are also several recalcitrant federal cleanup sites where EPA needs to become more involved (ex. US Moorings and US Navy).

The Proposed Plan provides very little information on cleanup of upland riverbank and groundwater sources to Portland Harbor sediments. It appears, but is not completely clear, that the Proposed Plan may be deferring this work to the State. However, in their 2016 summary report, ODEQ has deferred the selection of riverbank erosion source control measures, mitigation designs, permitting, and overall implementation to EPA. The ROD needs to require a more comprehensive cleanup of riverbank and groundwater plume contamination, as well as provide transparency and clarity on how EPA and the state will address these media and how ROD criteria will apply to these sources. Baseline monitoring should include an investigation of areas with suspected contamination that have not been adequately investigated to inform cleanup design.

EPA needs to clarify how the ROD and other specific efforts will address the numerous other upland contaminant source control needs and data gaps that need to be addressed, including floodplain soils, stormwater discharges, groundwater seeps, combined sewer overflow (CSOs), railroads, and Federal, City, ODOT, Port and County facilities or discharges not necessarily under ODEQ purview. Also of concern is the fact that configurations of the Big Pipe construction makes it difficult to trace pollutant load from a specific source area to a discharge point.

There has been no commitment from EPA to take enforcement actions or to use its authority to compel cleanups for upland sites that currently impact the quality of water and sediment in Portland Harbor. The proposed plan does not address the transmission of contaminants from sites where source control actions are not completed by ODEQ prior to the implementation of the Portland Harbor cleanup. If source controls are not implemented, continuing transport of contaminants will diminish the overall effectiveness of any remedy EPA implements.

The ROD should identify milestones for the upland source control work based on the in-water remediation schedule that triggers intervention by EPA in the upland source control remediation efforts. This timeframe should be identified so that EPA has adequate time to implement actions to address source control issues prior to adjacent or downstream in-water work.

iv. Recontamination

Based on the population density and types of activities surrounding Portland Harbor, as well as upstream, future re-contamination is a certainty. The ROD needs to address how recontamination will be handled; clarify roles of federal, state, and local programs in addressing recontamination; and begin developing the framework for a monitoring program that will inform source control efforts on where recontamination is coming from (ex. upland sources, in-water transport of sediments, etc.). EPA has a continued role in source control and prevention and cleanup of recontamination and cannot shift this responsibility entirely to the State of Oregon.

v. Regional Plan

The Portland Harbor cleanup should be included in a more comprehensive approach to addressing the contaminants in the Willamette River watershed by implementing a coordinated multi-program effort using EPA, State of Oregon, and local authorities. The cleanup at Portland Harbor is a long term investment in community and ecological health. In order to sustain a successful remedy that is protective of human health and the environment, EPA should implement a comprehensive and integrated cleanup approach that addresses the complexity of the contaminant challenges. This will require participation of coordinated programs to identify, plan, implement, and monitor activities necessary to ensure compliance with environmental laws and regulations. This is of particular importance to ensure that sources within and upstream of Portland Harbor do not cause recontamination of the Site or otherwise diminish the efforts to remediate Portland Harbor.

The ROD should include a means for assuring that these sources will be cleaned up. In addition to the ROD, on a region-wide scale additional use of existing Clean Water Act (CWA) authorities for TMDLs, discharge permits, and enforcement actions must be considered. For example:

- Develop an integrated watershed management plan with subwatershed approaches to return the Willamette River to a status of health.
- Particularly focus is needed for contaminants such as DDT, DDE, PCBs, and PAHs that are causing 303(d) impairment of water and for which currently there is neither a TMDL underway nor a process to delist.
- Implement a Willamette River basin-wide TMDL.
- As a pre-cursor to a TMDL, consider the benefits of implementing a Willamette River basin-wide Pollution Loading Analysis (PLA) to help evaluate the cumulative effects of pollution, aid in identifying sources and their relative contributions, and help prioritize upland source control efforts (ex. Green-Duwamish Watershed PLA).
- Consider updating state NPDES permitting requirements. For example, see recent Washington Department of Ecology proposal to modify the Phase I Municipal Stormwater Permit to include requirements for Seattle to adaptively manage their municipal stormwater discharges to the Lower Duwamish Waterway, as well as their updated Industrial Stormwater General Permit (ex. more frequent cleaning and sampling of process lines).
- Revisit the 2009 EPA study¹⁴ recommending the following for the Columbia River Basin, which includes the Willamette River basin: (1) expand toxics reduction activities; (2) identify, inventory, and characterize the sources of toxics in the basin; (3 & 4) develop regional, multi-agency long-term monitoring and research programs; (5) develop a data management system that will allow us to share information on toxics in the basin; and (6) increase public education about the toxics problems and resource needs.

EPA needs to make a commitment, on a multi-program level, to ensure the long-term success of the Portland Harbor cleanup, reduce contaminant inputs to the Willamette River, prevent Site re-contamination, and restore the health of the Willamette River to its beneficial uses. This commitment must involve collaboration with State and local partners, tribes, and public interests. The Yakama Nation expects to be an active participant in the development of a regional plan.

¹⁴ U.S. Environmental Protection Agency. 2009. *State of the River Report for Toxics*. EPA-910-R-08-004.

d. Disposal

Long-term issues associated with the disposal options discussed in the Proposed Plan are a concern to the Yakama Nation.

i. Yakama Nation Opposes the use of Roosevelt Landfill

Yakama Nation requests that EPA consider landfill options outside of Yakama Ceded Lands for disposal of wastes from the Portland Harbor Superfund Site. The FS indicates that other acceptable landfill options are available which include the Columbia Ridge Landfill (Subtitle D) and Chemical Waste Management (Subtitle C) in Arlington, Oregon. These landfills have adequate capacity; available rail transport, and accept wet waste (Columbia Ridge).

ii. Yakama Nation Opposes the Confined Disposal Facility

Yakama Nation opposes the use of a Confined Disposal Facility at the Portland Harbor Site because high-level contaminated sediments should be permanently removed from the river. The construction of a CDF would destroy an estimated 14-acres of critical, high-value habitat and poses an unnecessary risk for future contaminant releases. Although modeling of the proposed CDF shows concentrations of COCs released from the CDF will be below water quality criteria, the model shows releases of COCs will continue to the Willamette River in perpetuity which may result in further impacts. This seems counter-productive to the goal of cleaning up the Site and achieving the RAOs.

The CDF modeling excludes modeling of the lighter fraction COCs since as stated in the FS, *“heavier, more hydrophobic and recalcitrant compounds are expected to have the greatest effect on long-term water quality issues in CDFs.”* Lighter fractions of the COCs should be modeled since the short-term water quality issues could be greatly affected. In addition, an evaluation of existing technologies that could be implemented that would eliminate the leaching of COCs from the CDF into the Willamette River is lacking and should be discussed.

The analysis of the use of the CDF should also include the possible future effects on releases from construction and operation, global warming, flooding, and potential earthquake hazards.